Chapter 9
Legal Aspects of Climate Change Adaptation

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9.1 Introduction

As climate change and anthropogenic activities are putting European habitats and their management under pressure, measures are needed to reduce impacts and to prepare for and react to future developments of protected areas. These measures are subject to legal regulations, especially those of nature protection and water law, but also of spatial planning and the law of economic land and natural resources use. Adaptation for nature protection areas can cause conflicts with other legal interests of a public or private rights origin. Thus a stricter regime of nature protection adapted to higher habitat sensitivity can interfere with, e.g. a growing need for public infrastructures or private agricultural land use, which themselves could be intensified under changing climate conditions.

These legal issues of climate change adaptation are ideally dealt with in a comprehensive political and legislative process spanning from the international and European level down to national strategies and regional planning, in order to adapt the law as necessary to ensure a higher adaptive capacity of the legal framework for nature protection areas and water resource management. In this chapter, the policy making in the European Union for climate change adaptation and biodiversity protection and the possibilities and constraints of the legal framework for nature protection and water management are analysed in order to highlight the chances and shortcomings of adaptation in the political and legal field.

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First, the European policy framework for climate adaptation in the field of nature conservation is discussed. Second, the adaptability of European Nature Conservation and Water Law is evaluated. Third, the implementation of these provisions in central European member states is compared. On this basis, fourth, the legal options and the need for amendments are identified. Finally, the scope of future policy making and legislation will be assessed.

9.2 Nature Protection in European Climate Change Adaptation Policies

The European political context for adapting nature conservation to climate change emerges from legislative initiatives and documents produced by the European Council and the European Commission as well as from the literature on the effects of climate change on biodiversity and on recommended means and approaches for adaptation and mitigation (EC White paper on Adapting to Climate Change 2009,[1] EC Impact Assessment 2009,[2] EU Ad Hoc Working Group on Biodiversity and Climate Change 2009,[3] Draft Guidelines on dealing with the impact of climate change 2012,[4] EC Communication 'Our life insurance, our natural capital' 2011,[5] Biesbroek et al. 2010; Cliquet et al. 2009; Trouwborst 2009, 2011; Naumann et al. 2011). Within this context the EU appears to have a solid biodiversity conservation policy framework supported by such key instruments as the Birds and Habitats Directives with the Natura 2000 Network, the EU Green Infrastructure Strategy and the Water Framework Directive, in addition to other relevant regulations and documents reviewed, among others, by Trouwborst and Naumann (op. cit.). Put in a worldwide context, the recent European regulations on biodiversity and climate stem from comprehensive guidance provided by the Secretariat of the Convention on Biological Diversity (CBD): Connecting Biodiversity and Climate Change Mitigation and Adaptation and the CBD COP decision X/33[6] on

[1] Commission of the European Communities, White Paper – Adapting to climate change: Towards a European framework for action COM(2009) 147 final.

[2] EC Impact Assessment Guidelines SEC(2009) 92.

[3] Report of the Second Meeting of the Ad Hoc Technical Expert Group on Biodiversity and Climate Change 18–22 April 2009 – Helsinki, Finland.

[4] Draft Guidelines on Climate Change and Natura 2000 – Dealing with the impact of climate change on the management of the Natura 2000 Network. The document was prepared under contract to the European Commission (contract N° (ENV B.3./SER/2010/0015r) by Alterra and Eurosite; supplemented 2012: "Managing climate change for the Natura 2000 network – assessment of the vulnerability of species and habitats of Community Interest to climate change").

[5] Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions – Our life insurance, our natural capital: an EU biodiversity strategy to 2020 COM(2011) 244 final.

[6] Conference of the Parties to the Convention on Biological Diversity, Tenth meeting, Nagoya, Japan, 18–29 October 2010, decision adopted by the conference of the parties to the convention on biological diversity at its tenth meeting X/33 – Biodiversity and climate change (UNEP/CBD/COP/DEC/X/33).

biodiversity and climate change. The CBD COP has resolved to "take measures to manage ecosystems so as to maintain their resilience to extreme climate events and to help mitigate and adapt to climate change" and to "integrate climate change adaptation measures in protected area planning, management strategies, and in the design of protected area systems." The EU's existing commitments including the Biodiversity Action Plan have already been instrumental in achieving some progress in the implementation of policies and practical measures for nature conservation in the face of climate change.

The European process of adapting nature conservation to climate change is already progressing in both political and practical dimensions, though adaptation options and approaches may be of a piecemeal character and vary between countries. Thus there is a need for an integrated strategic approach to be applied at regional and national levels to ensure that timely and effective adaptation of management measures is taken, safeguarding coherency across different sectors and levels of governance (Draft Guidelines 2012).[7]

The White Paper sets out a framework for the European policies which aim to reduce environmental vulnerability to the impacts of climate change by identifying main directions of activities to be taken. The document highlights the necessity for a more integrated effort to mitigate and adapt to climate change, as this is a prerequisite for preserving both the natural values and the socio-economic interests of Europe. The White Paper makes it clear that adaptation needs to be urgently mainstreamed into EU sector policies, and that in each sector further work needs to be done to improve understanding of the impact of climate change, assess appropriate responses and secure the necessary funding, while adaptation policies receive support and are strengthened by an integrated and coordinated approach at EU level. Also the new EU biodiversity strategy 'Our life insurance, our natural capital' of 2011 underlines the urgency of addressing climate change in sector policies in order to increase the resilience of European biodiversity.

The 'Draft Guidelines on dealing with the impact of climate change on the management of Natura 2000' implement one of the actions of the White Paper.[8] The document provides opportunities for adaptive planning and managing climate change impacts and presents practical options (strategies and measures) for management adaptation to reduce non-climatic stresses in habitats. At the same time, the Guidelines lay down principles for generating new activities to increase the effectiveness of responses to climate change with the aim of preserving Europe's biodiversity. The principles for conservation and management strategies that maintain biodiversity can be summarised as follows: integrate biodiversity into wider seascape and landscape management; restore degraded ecosystems and ecosystem functions; and facilitate adaptive management by strengthening monitoring and

[7] Draft Guidelines on Climate Change and Natura 2000, European Commission, 2012 (op. cit. fn. 4).

[8] Commission of the European Communities, White Paper – Adapting to climate change: Towards a European framework for action COM(2009) 147 final.

evaluation systems.[9] In line with the Guidelines, the adaptation of protected area management shall focus on eliminating and/or limiting the pressures that have been proven to render target habitats especially prone to climate change, thus reducing their natural resilience. Another important issue is to include socio-economic aspects within the context of protected area adaptation to climate change.

9.3 Adaptability of the European Nature Conservation and Water Law

9.3.1 Natura 2000 Law: Aims, Measures, and the Relevance of Climate Change

The Natura 2000 law serves the purpose of conserving European natural heritage. It consists of both the Birds Directive[10] (BD) and the Habitats Directive[11] (HD), as Art. 3 (together with Art. 7) HD states that the birds protection measures are integrated in the system created by the Habitats Directive, which is characterised as a "coherent European ecological network of special areas of conservation [that] shall be set up under the title Natura 2000". The European directive law has to be implemented by the member states, however on the other hand it itself implements international law agreements that the EU is bound to, above all the Bern Convention (Trouwborst 2011, p. 73). Therefore, the aims of Natura 2000 are mainly based upon the provisions of the Biodiversity Convention as well as on the Bern Convention. This means that the protection of biodiversity is realised by means of both an in-situ system of specially managed protected areas for habitats of species and by general ex-situ protection measures for species. The Bern Convention thus provides for international coordination and for a combination of both species and habitats protection (Dodd et al. 2010, p. 144). It is aimed at "take[ing] requisite measures to maintain the population of wild flora and fauna at, or adapt[ing] it to, a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements."[12] This is reflected in Art. 2 HD, which sets the task "to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora." That means that the Natura 2000 system is a conserving rather than a highly dynamic nature protection strategy.

[9] Cf. Draft Guidelines on Climate Change and Natura 2000, European Commission, 2012 (op. cit. fn. 4), pp. 72–99.

[10] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version, OJ L 20, 26.1.2010, p. 7, repealing in its Art. 18 the older Directive 79/409/EEC).

[11] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.7.1992, p. 7).

[12] Art. 2 Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats, Bern, 19.9.1979, Council of Europe, European Treaty Series No. 104.)

The measures to achieve these aims are threefold, according to Art. 6 HD. First, management and development planning provisions have to ensure that conservation status can be maintained (Art. 6 (1) HD). Second, the deterioration prohibition (Art. 6 (2) HD) demands that the protected habitats are shielded from all kinds of external influences, according to the European Court of Justice[13] even those of a natural origin (Schumacher et al. 2013, Sec. 5.4.2), although the applicability of this jurisdiction to global natural changes such as climate change remains uncertain (Cliquet et al. 2009, p. 169; Möckel and Köck 2009, p. 320 et seq.; Trouwborst 2011, p. 74). And third, external influences arising from anthropogenic activities in the form of plans or projects have to be restricted to an admissible level, which is ensured by means of an impact assessment for those plans and projects that could affect protected areas (Art. 6 (3) HD). This system allows exceptions only for reasons of overriding public interest (Art. 6 (4) HD).

The Natura 2000 law focuses not only on ubiquitous species, but also on protecting area-based habitats, which are highly vulnerable to climate change impacts and therefore subject to considerable changes (Möckel and Köck 2009, p. 320; Schumacher et al. 2013, Sec. 3.2.1). The conservation aims on the other hand – especially in connection with the deterioration prohibition – do not allow a more flexible, dynamic approach (Cliquet et al. 2009, p. 163; Haber et al. 2010, p. 382; Hendler et al. 2010, p. 689; dissenting: Dodd et al. 2010, p. 141). Therefore, with increasing climatic influences on the ecological composition within protected areas, a more and more demanding protective effort has to be made in order to maintain or even restore the favourable conservation status that the Habitats and similarly the Birds Directive require in their respective Art. 2 (cf. Trouwborst 2011, p. 70, fn. 86; Dodd et al. 2010, p. 144 et seq.).

9.3.2 Water Law: River Basin Management Planning Under Climate Change

A lot of areas of high conservation value are wetlands. Therefore, as well as the Natura 2000 law, the European Water Framework Directive (WFD) plays an important role for the protection of areas of high ecological value.

Art. 4 para. 1 WFD obliges the member states to prevent deterioration and to achieve a good ecological status and a good chemical status by 2015 (with possible extensions to 2021 or 2027). While the good status of surface water bodies requires a good ecological status[14] (or potential) and a good chemical status,[15] for ground

[13] ECJ 20.10.2005, Case C-6/04 "Gibraltar", [2005] ECR I-9017, para. 34.

[14] Good ecological status is the status classified in accordance with the biological, hydromorphological, chemical and physico-chemical elements of Annex V WFD (Art. 2 No. 22 WFD).

[15] The chemical state of a surface water body is considered "good" if concentrations of pollutants do not exceed the environmental quality standards established in the Directive 2008/105/EC on environmental quality standards in the field of water policy (OJ 2008 L 348/84) and under other relevant Community legislation setting environmental quality standards at Community level, such as the Nitrates Directive (OJ 1991 L 375/1) (Art. 2 No. 24 WFD).

water bodies a good chemical and quantitative status is necessary. Due to its ecological approach, the WFD interferes with various aspects of nature conservation. It has the general target of protecting and improving the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly, depending on the aquatic ecosystems (Art. 1a WFD). The WFD considers water bodies as a whole and addresses their function as habitats for plants and animals.

The overall concept for achieving good water status is river basin management planning. The WFD provides two types of planning tools: the programme of measures (Art. 11 WFD) and the river basin management plan (Art. 13 WFD). Both types of plans form the basis for a coherent, all-embracing management concept for river basins. While the RBM Plans reflect the whole planning process in the river basin (cf. Annex VII WFD), the programmes of measures set out the actions to be taken to attain directive objectives during the plan period. For the first time, the plans and programmes had to be established in all EU member states by 2009. They are to be reviewed and updated by the end of 2015 and every 6 years thereafter.

The field of water management is particularly affected by climate change, because consequences for both water quality and water quantity are expected, accompanied by changes in ecological status, usability and the occurrence of extreme events such as flooding and low water levels (LAWA 2010). Beside these primary impacts, which are caused by climate change itself, there will be secondary impacts caused by adaptation measures (e.g. construction of dikes and dams) and mitigation measures (construction of water power stations to reduce CO_2 emissions) (Reese 2011, p. 63). Concerning water law, the question is whether the management system of the Water Framework Directive really is sufficient to meet climate change adaptation needs, or if it has itself to be adapted accordingly (Reese 2011, p. 62).

9.3.3 General Principles of Legal Climate Change Adaptation

As Craig has analysed, five principal characteristics of climate change adaptation law can be identified: (1) constant and comprehensive monitoring; (2) resilience improvement; (3) long-term cross-sector coordinated planning; (4) principled flexibility in regulatory goals and environmental resource management; (5) acceptance of inevitable loss (Craig 2010, p. 9 et seq.). The principles reflect the typical problems that climate change causes for the legal system. It is a highly dynamic process, it has a great variety of possible effects and affected objects, it is accompanied by considerable uncertainty, and its effects are of a long-term durability, requiring a de-centralised, location specific response (Reese et al. 2010, p. 13 et seq.). This means that there is no single, general adaptation option that suits all kinds of natural resource management regulations (Craig 2010, p. 16 et seq.). What is rather required are many different and specific adaptation measures that are

flexible enough to meet every possible adaptation need that could arise in future, while at the same time not causing harm in cases where making use of their adaptive potential proves not to be necessary (no-regret measures).

It follows that nature conservation and water management require better surveillance of all impacts and effects, improved planning taking account of uncertainties on a long-term time scale in a preventive manner (monitoring and planning), and a more flexible system in order to react to unforeseen developments on the local level. The preventive provisions ought to be open to foreseeable changes from the beginning and should be designed in a highly resilient manner (resilience improvement). Reactive instruments have to be led by adaptation principles that ensure that the aims of mitigation and averting negative impacts are not set aside too quickly and that adaptation measures are targeted towards conservation aims, taking account of the new circumstances caused by climate change (principled flexibility). Basically, pro-active prevention is the rule, whilst reactive response should remain the exception. Typically, climate change specific monitoring and planning will lead to the implementation of management practices and interference prohibitions needed to avert negative impacts on good conservation status, e.g. early action in water management and water use regulations, when climatic developments are expected to lead to a problematic situation for a wetland habitat area. At the same time, regulations should be introduced that allow adequate reactions to more unlikely, not preventively tackled or even completely unforeseen events and impacts, e.g. the possibility to cancel permission granted for water cooling of a power plant when climate conditions worsen unexpectedly or extreme events have occurred. The last resort is the point where inevitable and final loss must be accepted, i.e. a definition of situations where the protection goals or even a whole protection area designation should be cancelled and possibly replaced. It must be made very clear in binding legal terms that this is not an option where reasonable efforts are still possible and bearable (Craig 2010, p. 69 et seq.).

The most challenging task is resilience improvement by reducing non-climatic impacts. Adaptation to climate change means – generally in the field of environmental law – above all the intensification of protective and preventive standards, as climate change mostly leads to an aggravation of existing environmental stresses, with nature becoming more and more intolerant (Craig 2010, p. 43 et seq.). The factual differences and consequently the legal difficulties are of a gradual, not categorical, nature (Reese et al. 2010, p. 12).

The legal steps required in order to adapt to climate change can either be taken on the level of the protection goals, or at the instrumental level of protection measures. The former could be made more open to changes, so that dynamic processes rather than fixed states become the goal of conservation: “Environmental Protection and Environment Asset Usage will have to retire from the leading principle of a relatively static environment that is to be conserved near the original state. Instead, a dynamic protection concept is needed [. . .].” (cf. Reese et al. 2010, p. 13). Rather than conserving ecosystem states and functions, the goal should be to increase resilience and hence strengthen adaptive capacity (Craig 2010, p. 39). However, it is important to bear in mind that such a goal, i.e. protecting dynamic

processes and adaptive capacity by improving resilience, remains a static goal, not one that is subject to change through time.

In addition to these "new but fixed" goals, the goals could themselves be changed when natural developments justify this. The goals set for environmental and spatial development policies have to be revised regularly, whether or not the quality and protection goals or the resource management aims are still appropriate, and whether or not the respective operational directives and measures remain purposeful (Reese et al. 2010, p. 13 et seq.).

As far as conservation measures are concerned, the focus is on high flexibility in regulatory law and openness in planning and prevention. Also on the instrumental level, more dynamic environmental development has to be taken into account (Reese et al. 2010, p. 14). In spatial and sector planning as well as in the regulation and permission of land use and exploitation of natural resources, it cannot be assumed as it used to be that current environmental assessments retain their validity in the future. This aspect has to be taken into account in state planning procedures and administrative decisions. The new dynamic environmental conditions mean that environmental law has to be tested to ascertain whether it can cope with the necessary adaptations on the levels of goals and measures and the status quo of land use practice (Reese et al. 2010, p. 14).

9.3.4 Adaptability of European Nature Protection and Water Law

Against this theoretical background, the Natura 2000 and Water Law can be tested with regard to its adaptability. The Habitats Directive already reflects several of the adaptation law principles, without making any of them explicitly considerate of aspects of climate change adaptation. For example, surveillance is within the scope of Art. 9–11 HD, entailed by the duties to report and research in Art. 17 and 18 HD. The situation is similar regarding the WFD. Whilst the monitoring programmes stipulated in Art. 8 WFD are generally not designed to cater for the need to identify and monitor climatic aspects, they will inherently contribute to the detection and understanding of aspects of climate change (EC 2009, p. 50). The Birds Directive contains no monitoring duties, but it does stipulate research and reporting obligations (Art. 10 and 12 BD). Most significantly, on the level of an individual protected area, management planning according to Art. 6 (1) HD induces the scope of monitoring needed in order to identify the ecological requirements of the natural habitat types that are protected in the area and under the prevalent conditions (Schumacher and Schumacher 2012, p. 120).

The general deterioration prohibition, Art. 6 (2) HD, and the assessment of implications of plans and projects stipulated in Art. 6 (3), (4) HD serve the purpose of at least maintaining resilience, although improvement cannot be directly achieved with these instruments. With regard to climate change impacts, this

implies that regardless of the human or natural origin of the deterioration, it has to be averted in both an anticipatory and restoring sense (Trouwborst 2011, p. 74; Schumacher et al. 2013, Sec. 5.4.2 et seq.). Plans and projects ought to be rejected when they are expected to interact negatively with present or future climate change induced impacts on the protected area (Schumacher and Schumacher 2012, pp. 120–122; Cliquet et al. 2009, p. 170). Whereas Art. 6 (2)–(4) HD provide for measures to avoid deterioration, area management according to Art. 6 (1) HD (Art. 3 BD) requires positive measures for restoring favourable conservation status (European Commission 2000, p. 16 et seq.). However, due to its vague formulation and the lack of both strict measurement planning obligations and target dates, it is not capable of enforcing satisfactory practical implementation, although the management duty is considered to be an obligation of result (Trouwborst 2011, p. 74, at Fn. 144; European Commission 2000, p. 17). The consequence of this inconsistency is that Art. 6 (1) HD cannot effectively guarantee active resilience improvement, although it gives ample room for positive measures that are aimed at raising the present protection standard through restoration (Verschuuren 2010, p. 437). Art. 4 WFD, in contrast, not only stipulates a deterioration prohibition, but also obliges the member states to achieve a good status of all surface and ground water bodies. These objectives and the required measures to achieve them can contribute to a great extent to the resilience of aquatic ecosystems.

Some principled flexibility is contained in the regulations of Art. 4 (1) (4) HD and Art. 4 (1), (2) BD, allowing adaptation of the list of proposed sites of community interest (Cliquet et al. 2009, p. 164 et seq.; Trouwborst 2011, p. 73 et seq.). Whilst the procedure according to the Habitats Directive requires the participation of the Commission, flexibility is inherent in the Birds Directive's ongoing duty to designate areas as required (Dodd et al. 2010, p. 147). Another hint of flexibility is contained in Art. 9 HD that allows the declassification of areas in rare cases where it is warranted by the results of the surveillance that has to take place according to Art. 11 HD (Thomas 2008, p. 4, 11). The Birds Directive does not contain similar provisions, but the criteria for declassification are just as strict (Schumacher and Schumacher 2012, p. 115 et seq.; Thomas 2008, pp. 9–11). The results of surveillance and research can also lead to the formation of a new technical and scientific standard and hence to an adaptation of the annexes according to Art. 19 HD (Art. 15 BD), including habitat type definitions, selection criteria and listed species (Schumacher et al. 2013, Sec. 5.4.8 et seq.). The objectives of Art. 4 WFD are flexible in two respects. Climate change may, on the one hand, justify the adaptation of the reference sites for good water status (cf. Annex II of the WFD), and, on the other hand, it may be the reason for making use of the exemptions from good water status (cf. Art. 4 (3) to (7) WFD) (Reese 2011, p. 72 et seq.). Exemptions without justification in line with the directive are not to be seen as a general strategy to cope with the consequences of climate change (EC 2009, p. 58).

Also management planning, Art. 6 (1) HD, and network coherence improvement, Art. 10 HD, are clear options for resilience improvement (Schumacher and Schumacher 2012, p. 107). However, they are not mandatory and their implementation is not enforceable (Trouwborst 2011, p. 74 et seq.; Cliquet et al. 2009,

p. 171). Additionally, these provisions lack appropriate alignment through guiding principles. This hinders overall network coherence and resilience improvement. If the administration does not take the step of translating the general aim of adapting to climate change into specific, area- and impact-based ecological requirements, targeted long-term adaptation will not occur. In contrast, the WFD stipulates river basin management planning combined with a cyclical review of progress, which is more consistent with the ideal of principled flexibility as it regularly ensures the sufficiency of chosen measures for the aims set.

Generally, the Habitats Directive already allows many climate change adaptation measures, but remains too unspecific with respect to climate change impacts. What is hardly possible at present is the targeted reduction of external, non-climatic stresses as a resilience-improving adaptation measure for a specific site, as the Habitats Directive provides no legal instruments for influencing already existing land use practices apart from the deterioration prohibition (cf. Trouwborst 2011, p. 74), which seems to be rarely applied for this purpose. Regarding the European regulations of water management, the reduction of external, non-climatic stresses is much easier due to the ambitious objectives of Art. 4 WFD, the target dates for achieving good water status and the obligation of the member states to undertake necessary measures (cf. Art. 11 WFD), although there is still a long way to go (Albrecht 2013, p. 389).

9.4 Results from a Legal Analysis of National Regulations in Seven Central European Countries

In order to render the different options of implementing the European law provisions visible and comparable, the legal situation of nature protection and water law regulations was compared in seven Central European states: Austria, Germany, Hungary, Italy, Poland, Romania and Slovenia.

9.4.1 Aim and Method of the Legal Comparison

The aim of the legal comparison is to find out how the requirements of the directives are legally implemented in the member states and whether, when compared with the stipulations of the European law, there are any legal peculiarities of national implementations that are relevant for climate change adaptation.

As the European directive law has to be implemented by the member states, binding with regard to the aims to be achieved, but free in the form and methods (Art. 288 Treaty on the Functioning of the European Union [TFEU][16]), differences

[16] Consolidated version, OJ C 115, 9.5.2008, p. 47.

in the legal systems for the protection of Natura 2000 sites can be expected. This is mainly due to the fact that the required new regulations are typically integrated into a pre-existing environmental protection regime. This is the idea of European directive law, which is supposed to strive to respect different legal cultures in their individuality. On the other hand, it is possible that a member state creates a new, parallel system of nature conservation or water law. In this case, not so much the integration into the nature protection or water law system, but the integration into the whole national legal system is the issue. It is easier to fulfil the requirements of the directives with a specific legal instrument designed for this purpose, but, at the same time, it is harder to fit this instrument into the pre-existing structures of the legal system as a whole. The process of copying the directive's text does not usually lead to the coherent interaction of national and European legal concepts. This is also the case when a directive is not implemented or interpreted correctly or effectively with regard to its aims (cf. Trouwborst 2011, p. 71).

The legal comparison was performed in three steps. First, the Natura 2000 and water law was analysed with respect to its typical and most significant regulatory provisions and structures. In a second step, the functional core provisions of the regulations were identified. Third, these core regulations were sought within the various member states' nature protection and water laws. Finally, it can be assessed which system integrates the European requirements well, and can easily use its general legal provisions, also in order to perform climate change adaptation tasks.

The legal comparison was realised by identifying the most important rules of the Habitats, Birds and Water Framework Directive for climate change adaptation, following the above mentioned principles, and by compiling them in a questionnaire. This questionnaire was sent to project partners from seven different countries, who then filled it out by listing the regulations that implement the provisions selected from the directives.

9.4.2 Nature Protection Law Implementing Natura 2000 in Central Europe

The core provisions that have been selected for studying the adaptation challenges that the Natura 2000 law is facing are: area designation, conservation objective setting, taking conservation measures, the assessment of the impact of human activities, and network connectivity (cf. Cliquet et al. 2009, p. 163).

9.4.2.1 Procedure for Area Selection and Forms of Area Designation, Protection Goals, and Connectivity Improvement

The procedure for the designation of areas is rather different for the Birds and Habitats Directive, although the protected areas are all integrated in the same

ecological network "Natura 2000" (Cliquet et al. 2009, p. 163). Whereas Art. 4 of the Birds Directive requires protection of "the areas most suitable for the conservation of those species [listed in Annex I, or migratory]", the Habitats Directive has a three-step selection and designation procedure where responsibilities are well distributed between the member states and the Commission (Trouwborst 2011, p. 71). Although the Birds Directive approach seems to allow for highly flexible handling, the selection criteria are rather static: only the presence of a certain number of a specific bird species may be considered, there is no option for planning and steering the protection of birds' habitats (Cliquet et al. 2009, p. 164). Similarly, the Habitats Directive sets selection criteria that are based on the idea of a single selection and designation process. Whereas the criteria for selection are less restricted than for bird protection, as, e.g., the ecological restoration potential is considered, the size, number, and conservation status of habitats at a certain moment are still the most important criteria (Cliquet et al. 2009, p. 165). This concept will be seriously challenged by a changing climate (Köck 2007, p. 400).

Within the Central European countries, three models of area designation can be identified. In the state of Burgenland that belongs to Austria, for instance, areas are designated as "European Protection Areas" by law or ordinance; if such an area coincides with a pre-existing national protected area, the latter has to be cancelled in favour of the former according to Sec. 22b (3) Burgenland Nature Conservation Act.[17] This means that there is always a precise protection regime for Natura 2000 areas that can be adapted specifically, regardless of the requirements for national protected areas. Similarly, in Romania and Slovenia there are specially designed protection area categories for Special Areas of Conservation (SAC) and Special Protection Areas (SPA). In Slovenia, all of these areas are designated by government decision (Art. 4, App. 2 of the Decree no. 49/2004 on Special Protection Areas (Natura 2000 areas)),[18] and in Romania area designation is a parliamentary decision according to Art. 8 (1) (b) of Law no. 49/2011 on protected areas for the conservation of wild flora and fauna.[19]

In Germany, area designation is in principle entirely integrated into the national system of protected areas, as Sec. 32 (2) of the Federal Nature Conservation Act[20] requires that SACs and SPAs are declared by a specific ordinance using the categories provided in Sec. 20 (2) of the Federal Nature Conservation Act. However, Sec. 32 (4) of the Federal Nature Conservation Act gives the federal states the

[17] Gesetz vom November 1990 über den Schutz und die Pflege der Natur und Landschaft im Burgenland (Burgenländisches Naturschutz- und Landschaftspflegegesetz – NG 1990) LGBl. Nr. 27/1991 (XV. Gp. RV 468 AB 479).

[18] Uredbo o posebnih varstvenih območjih (območjih Natura 2000), Uradni list RS, št. 49/2004 z dne 30.4.2004.

[19] Legea 49 din 7 aprilie 2011 (L 49/2011) pentru aprobarea Ordonanţei de Urgenţă a Guvernului nr. 57/2007 privind regimul ariilor naturale protejate, conservarea habitatelor naturale, a florei şi faunei sălbatice, publicat in Monitorul Oficial 262 din 13 aprilie 2011 (M. Of. 262/2011).

[20] Bundesnaturschutzgesetz vom 29. Juli 2009 (BGBl. I S. 2542), zuletzt geändert durch Artikel 5 des Gesetzes vom 6. Februar 2012 (BGBl. I S. 148).

opportunity to deviate from this principle if the required protective status can be equally well achieved using other legal instruments.

In Hungary, a parallel system combining both national and European protected areas has been established. Although in principle all SPAs and SACs are to be declared as nationally protected areas, regulated in the Nature Conservation Act 1996/53[21] (Bársony and Dieckmann 2007, p. 55), there are areas for which this has not (yet) happened. They are protected according to the regulations of a separate Government Decree on Areas of Community Interest 275/2004[22] (Bársony and Dieckmann 2007, p. 54 et seq.). Interestingly, the latter regulations are considered to be more precise, specific, stricter and give the impression of representing less unsuitable implementation, although they are meant to be more or less provisional (Bársony and Dieckmann 2007, p. 62 et seq.). Also in Italy (Art. 3 (2) DPR 357/1997[23]) and Poland (Art. 6 (1) (5), 25 Law on Nature Conservation[24]), there are specifically designated SACs and SPAs alongside those that are overridden by, or integrated in, the protection regime of an existing national protection area (Italy: Art. 4 (3) DPR 357/1997, Poland: Art. 25 (2) Law on Nature Conservation).

Implementation of climate change adaptation measures related to the whole protection area seems to be more flexible within systems that fully integrate Natura 2000 sites into the existing legal regulations for nature protection areas, as the relation of nature protection to other land uses and the general rules of administration are already well established. These relations have to be specifically created for separate models, requiring, e.g., rules on how climate change adaptation needs for Natura 2000 sites are to be considered in spatial planning; similarly the administrative body responsible for setting up management plans and enforcing the deterioration prohibition has to be determined.

Improving network connectivity is a vital option for allowing nature to adapt to climate change as it offers the endangered species the possibility to migrate. The main problem of connectivity improvement as formulated in Art. 3, 10 HD, however, is its weak legal design: “Where they consider it necessary, Member States shall endeavour to improve the ecological coherence of Natura 2000”/ “Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies [. . .] to improv[e] the ecological coherence of the Natura 2000 network”. These provisions are not only too unspecific to demand properly binding implementation (cf. Cliquet et al. 2009, p. 171; Trouwborst 2011, p. 74), but cannot even be enforced against member states that do not make the required effort (Möckel and Köck 2009, p. 323). As connectivity is

[21] 1996. évi LIII. törvény a természet védelméről.

[22] 275/2004. (X. 8.) Korm. rendeletaz európai közösségi jelentőségű természetvédelmi rendeltetésű területekről.

[23] Decreto del Presidente della Repubblica (D.P.R.) 357/1997, Regolamento recante attuazione della direttiva 92/43/CEE relativa alla conservazione degli habitat natuali e seminaturali, nonche’ della flora e della fauna selvatiche. (Gaz. Uffic. n. 248 del 23.10.1997 – Suppl. Ordin. n. 219).

[24] Ustawa o Ochronie Przyrody z 16.04.2004 r. Dz. U. z 2009 r. Nr 151, poz. 1220.

also a transboundary issue, even more irritating is the fact that there is hardly any commitment on the EU level to improve the connectivity of areas and protection regimes between the member states. This is required to enhance the coherence of the Natura 2000 network (Trouwborst 2011, p. 75; Cliquet et al. 2009, p. 171).

9.4.2.2 Protection Regime (Legal, Administrative and Contractual Measures, Area Management Planning, Impact Assessment)

The protection regime has been implemented in most of the countries more strictly than required by the directive. In the state of Burgenland in Austria, Natura 2000 sites must be protected at least by means of a decree according to Sec. 22b (1) of the Burgenland Nature Conservation Act, and area management planning is compulsory for every site according to Sec. 22c (3) of the Burgenland Nature Conservation Act, whereas the Habitats Directive states in Art. 6 (1) that such plans shall be established "if need be". Germany has copied the directive's provision in Sec. 32 (5) of the Federal Nature Conservation Act, Italy in Sec. 4 (2) of the Decree of the President of the Republic 357/1997 on the Implementation of the Directive EC/92/43.

Most of the other Central European countries have installed a compulsory management planning procedure. In Hungary management plans are made specifically for every site, they stay in force for a maximum of 10 years, and they are legally binding to everyone exercising any activity within the protected area, according to Sec. 26 (3) of the Nature Conservation Act 1996/53. Very similar provisions on area management are contained in Romania's Art. 21 of the Law no. 49/2011 on protected areas for the conservation of wild flora and fauna. Slovenia has a system involving a centralised, regularly revised "operational programme on area management" that is specified for individual areas as needed (Art. 12, 13 of the Decree no. 49/2004 on special protection areas (Natura 2000 areas)), and in Poland there is a very similar "plan of protection tasks" set up for 10 years which becomes concretised on the local level (Art. 28 Law on Nature Conservation).

The procedure for assessing implications for the site in view of the site's conservation objectives according to Art. 6 (3), (4) HD, which is also applicable for SPAs, Art. 7 HD, is laid out in great detail in the directive and allows hardly any room for substantial deviations in its implementation. The procedure can either be integrated into existing permission procedures, or a specific Natura 2000 permission procedure can be created. Some countries include a definition of the term plan or project, whereas others do not specify these terms further than the Habitats Directive (Epiney and Gammenthaler 2009, p. 159 et seq.). In Germany, the impact assessment was not sufficiently implemented until the European Court of Justice intervened (Epiney and Gammenthaler 2009, p. 186 et seq.). Impact assessment can and should include climate change considerations related to future impacts of plans and projects (Cliquet et al. 2009, p. 170), however this is expressed by neither the Habitats Directive nor the implementing laws.

9.4.3 Water Law

The main tool with which the Water Framework Directive achieves its objective of good water status is river basin management planning. For a legal comparison of water law, therefore, the most important planning steps in terms of climate adaptation were selected. These are the initial analysis of the water status (Art. 5, Annex II WFD), the economic analysis of the costs of water services (Art. 5 WFD, Annex III), monitoring of the water status (Art. 8 WFD, Annex V), objective setting and making use of exemptions (Art. 4 WFD), and the establishment of the programmes of measures (Art. 11 WFD) (cf. EC 2008, p. 4; EC 2009, p. 39).

9.4.3.1 Risk Analysis and Economic Analysis, Monitoring

Within the compared Central European countries, the Water Framework Directive was implemented by national or federal water law and a series of governmental decrees containing more detailed information. In all of the countries river basin management planning and the cyclical updating of the plans are obligatory (Austria: Sec. 55c Act on Water Law,[25] Germany: Sec. 83 and 84 Federal Water Act,[26] Hungary: Sec. 3, 4, 21 Governmental Decree 221/2004,[27] Italy: Art. 117 Legislative Decree No. 152/2006,[28] Poland: Art. 113 and 114 Water Act 2001[29] and Gov. Decree of 18 June 2009 on water management planning,[30] Romania: Art. 43 Water Law,[31] Slovenia: Art. 55 and 59 (1) Water Act 2002[32]). The obligation to establish, review and update river basin management plans includes risk analysis for the water status and the economic analysis of water services. Both instruments are of great importance from the perspective of climate adaptation. Whereas the risk analysis requires a

[25] Wasserrechtsgesetz (WRG) BGBl. Nr. 215/1959 zuletzt geändert durch BGBl. I Nr. 24/2012.

[26] Wasserhaushaltsgesetz (WHG) vom 31. Juli 2009 (BGBl. I S. 2585), zuletzt geändert durch Artikel 5 Absatz 9 des Gesetzes vom 24. Februar 2012 (BGBl. I S. 212).

[27] 221/2004. (VII. 21.) Korm. rendelet a vízgyűjtő-gazdálkodás egyes szabályairól.

[28] Decreto Legislativo 3 aprile 2006, n. 152 "Norme in materia ambientale" – Gaz. Uffic. n. 88 del 14.04.2006 – Suppl. Ordin. n. 96.

[29] Ustawa z dnia 18 lipca 2001 r. Prawo wodne, Dz.U. z 2001 r. Nr 115, poz. 1229, consolidated version of the text: Dz. U. z dnia 9 lutego 2012 r., poz. 145 (Obwieszczenie Marszałka Sejmu R.P. z dnia 10.01.2012 r.w sprawie ogłoszenia jednolitego tekstu Ustawy – Prawo Wodne).

[30] Rozporządzenie Rady Ministrów (Dz. U. Nr 106, poz. 882 z dnia 18 czerwca 2009), w sprawie szczegółowego zakresu opracowywania planów gospodarowania wodami na obszarach dorzeczy.

[31] Lege nr. 107 din 25/09/1996 (forma consolidată 19/02/2010) – Legea apelor, publicat în Monitorul Oficial nr. 244 din 08/10/1996; aceasta este forma actualizată cu modificările și completările aduse de următoarele acte: Hotărâre nr. 83 din 15.03.1997, Hotărâre nr. 948 din 15.11.1999, Lege nr. 192 din 19.04.2001 republicare 1, Ordonanța de urgență nr. 107 din 05.09.2002, Lege nr. 404 din 07.10.2003, Lege nr. 310 din 08.06.2004, Lege nr. 112 din 04.05.2006, Ordonanța de urgență nr. 12 din 28.02.2007, Ordonanța de urgență nr. 3 din 05.02.2010.

[32] Zakon O Vodah (ZV-1), Uradni list RS, št. 67/2002 z dne 26. 7. 2002, 3237.

review of the impact of human activity on the water status which is influenced by climate change, within the economic analysis long-term forecasts of supply and demand for water should incorporate scenarios for climate change (EC 2009, p. 44 et seq. and p. 59 et seq.). In all of the central European countries under consideration, the legal stipulations require both an initial and an economic analysis and thus enable the consideration of climate change in river basin management planning (Austria: Sec. 55d and Annex B Act on Water Law, Germany: Sec. 3, 4 and 12 Federal Ordinance on Surface Water,[33] Sec. 2, 3 and 14 Federal Ordinance on Ground Water[34]), Hungary: Sec. 12–14 (initial analysis), Sec. 17 (economic analysis) Governmental Decree 221/2004, Italy: Art. 118 Legislative Decree No. 152/2006, Poland: Sec. 4 and 6 Gov. Decree on water management planning, Romania: Art. 43(1^4), Annex 1^1 No.1.1 and 1.2, 4 Water Law, Slovenia: Art. 55 para. 2 1.7 Water Act). Surface and groundwater monitoring obligations are stipulated in all of the countries too (Austria: Sec. 59c – 59i Act on Water Law, Ordinance on Water Status Surveillance,[35] Germany: Sec. 8, 9 and 11 Federal Ordinance on Surface Water, Sec. 9 Federal Ordinance on Ground Water, Hungary: EnvWatMin. Decree 30/2004[36] – Surface Water and EnvWatMin. Decree 31/2004 – Groundwater,[37] Italy: Art. 78 et seq. Legislative Decree No. 152/2006, Poland: Decree of the Minister of the Environment on the forms and ways of conducting the monitoring of the uniform parts of the surface and underground waters,[38] Romania: Art. 35 1^5, Annex 1^1 No.1.3 WL, Slovenia: Art. 55 para. 2 1.6 Water Act). Monitoring is essential for understanding and appropriately responding to climate change. Therefore the monitoring networks should be carefully planned with a long-term perspective (EC 2009, p. 50 et seq.).

9.4.3.2 Environmental Quality Objectives and Measures

Climate change also has to be considered with the designation of environmental quality objectives for water bodies (cf. Art. 4 WFD) and the selection of appropriate measures to achieve these objectives (Art. 11 WFD). The planning process must include assessment of whether in the long run the good status can be maintained even under future climate conditions, e.g., extreme summer droughts. The WFD offers the possibility to change the status of the reference sites (cf. Annex II WFD)

[33] Oberflächengewässerverordnung vom 20. Juli 2011 (BGBl. I S. 1429).

[34] Grundwasserverordnung vom 9. November 2010 (BGBl. I S. 1513).

[35] Gewässerzustandsüberwachungsverordnung (GZÜV) BGBl. II Nr. 479/2006, zuletzt geändert durch BGBl. II Nr. 465/2010.

[36] 30/2004. (XII. 30.) KvVM rendelet a felszín alatti vizek vizsgálatának egyes szabályairól;

[37] 31/2004. (XII. 30.) KVVM rendelet a felszíni vizek megfigyelésének és állapotértékelésének egyes szabályairól.

[38] Rozporządzenie Ministra Środowiska z dnia 15 listopada 2011 r. w sprawie form i sposobu prowadzenia monitoringu jednolitych części wód powierzchniowych i podziemnych (Dz. U. Nr 258, poz. 1550).

and thus to adapt the objectives for the affected water bodies in the process of the cyclical review and updating of river basin management plans. Where achieving the water quality objectives would require unproportional efforts, restrictive exemptions allow the objectives to be set aside (cf. Art. 4 para. 5, 6, 7 WFD) (Reese 2011, p. 67, 73 et seq.). The objectives and exemptions stipulated in Art. 4 and Annex II WFD are legally implemented in all of the central European countries compared (Austria: Sec. 30a to 30f Act on Water Law, Quality Regulations on Ecology and on Chemistry of Surface Waters and on Chemistry of Groundwater, Germany: Sec. 27–30, 44 and 47 Federal Water Act, Sec. 5, 6 Federal Ordinance on Surface Water, Sec. 4–11 Federal Ordinance on Ground Water, Hungary: Sec. 5, 6 (definition of ecological objectives), Sec. 7–10 (exemptions) Governmental Decree 221/2004, Italy: Art. 76 et seq. Legislative Decree No. 152/2006, Poland: Art. 38, 38a and 114a Water Act, Decree on the classification of the ecological status, ecological potential and the chemical status of the uniform parts of surface waters,[39] Romania: Art. 2 WL, Slovenia: Art. 2, Art. 7 No. 24–26, Art. 55 (2), Art. 56, Art. 62 et seq. Water Act). If there is strong evidence showing that the situation changes significantly at sites where there is little impact, reference conditions can be revised or exemptions can be applied. To avoid misuse, however, it is necessary to underpin such decisions with clear monitoring evidence: modelled assumptions of future climate alone are not sufficient (EC 2009, p. 58). Last but not least, particular emphasis should be placed on ensuring that the programmes of measures (PoMs) are adaptive to future climate conditions. Therefore, a "climate check" of the PoMs should be carried out with the aim to enhance the robustness of the measures against changing climate conditions, especially as far as cost intensive and long life-time measures are concerned. Measurement planning is stipulated in all the countries of Central Europe included in the comparison, leaving the administrations wide discretion for selecting the measures (Austria: Sec. 55f, 55g Act on Water Law, Germany: Sec. 82 Federal Water Act, Hungary: Sec. 18 Governmental Decree 221/2004, Italy: Art. 116 et seq. Legislative Decree No. 152/2006, Poland: Art. 113a and 119 Water Act, Romania: Art. 43($1^{8, 9}$) WL, Slovenia: Art. 57 Water Act). From the perspective of climate adaptation, measures should be favoured that are robust and flexible in the context of uncertainty and that cater for the range of potential variation related to future climate conditions ("no regret"). Furthermore, sustainable measures, especially those with cross-sectoral benefits ("win-win") and which have the least environmental impact (incl. green house gas emissions), should be selected (EC 2009, p. 63 et seq.).

[39] Rozporządzenie Ministra Środowiska z dnia 9 listopada 2011 r. w sprawie klasyfikacji stanu ekologicznego, potencjału ekologicznego i stanu chemicznego jednolitych części wód powierzchniowych; Dziennik Ustaw Nr 258, Poz. 1549.

9.5 Identification of the Legal Options, Their Limits, and the Need for Legal Changes

9.5.1 General Findings

Although climate change issues are not explicitly mentioned in the regulations of the HD, BD and WFD, most of the adaptation requirements for the areas can be realised within the existing legal framework in the Central European Countries. Area designation and area management and protection regulations are flexible enough to introduce the measures needed, be it the designation of new protected areas, the making or amending of (climate change adaption specific) management plans, or indeed changes to the protection regime. The latter are typically difficult to implement, as they usually require changing the protected areas statutory instrument or law. The differences in the implementation of nature protection law are sometimes considerable, especially concerning the procedure and effects of area management planning according to Art. 6 (1) HD and 4 (1) BD. For the water law, the differences are far less significant, as the WFD hardly allows any room for deviating implementations. The impact assessment procedure (Art. 6 (3), (4) HD) is a suitable instrument with scope for scientifically uncertain climate change adaptation considerations, but binding permission decisions could then face more legal uncertainty (Cliquet et al. 2009, p. 170). Generally, problems arise when climate change adaptation conflicts with other land use interests, for instance with the construction of highways or the extraction of water.

9.5.2 Nature Protection Law

9.5.2.1 Options for Climate Change Adaptation of Natura 2000 Areas

There are already many options within the Habitats and Birds Directive that allow for climate change adaptation (Trouwborst 2011, p. 77). New areas can be designated both for habitats and bird protection purposes, based upon the duties of Art. 4 (1) (4), Art. 11 HD and Art. 4 (1) (4) BD, using the legal provisions that implement these duties in the respective member state. In the case of SACs, this requires a report to and the participation of the Commission, whereas new SPAs have to be designated automatically as the distribution of wild bird species requires (see above 3.b.aa). However, at least in the case of the Habitats Directive, it is sometimes argued that the designation process is complete (Schumacher et al. 2013, 5.4.4.2, Footnote 454).

Area management can be adapted as climate change impacts require, more effectively in countries with compulsory and regularly revised management planning. In those countries where management planning is optional (cf. 3.b.bb), the need to make a new management plan can arise from climatic changes that severely affect the

conservation goals. In this case, special Climate Change Adapted Management Plans (CAMPs) could be a suitable instrument (see Chap. 10).

The options granted by the – typically purely declaratory – implementations of Art. 3 (3) and 10 HD also constitute many and far-reaching opportunities to integrate climate change adaptation into spatial planning by addressing the specific needs of expected network connectivity improvements.

The impact assessment for new plans and projects according to Art. 6 (3), (4) HD can, together with knowledge gained through surveillance (Art. 11 HD), be used to estimate future impacts with respect to expected climate developments. In terms of the maintenance of sites, the deterioration prohibition is the key instrument for keeping up resilience as required by the current conservation status.

9.5.2.2 Limits of Practical and Legal Adaptation

The existing legal framework still has, however, some considerable shortcomings with respect to climate change adaptation. For example, the designation of new protection areas needs space, which is typically not available, as most of the territory of member states is in use. An option could be the creation of "expectation areas" that become reserved for future nature protection in long-term planning processes (Hendler et al. 2010, p. 689 et seq.). But as a first step, it would already be an improvement if climate change adaptation options were explicitly included in the area selection criteria according to Annex III of the Habitats Directive (Cliquet et al. 2009, p. 166).

Network coherence improvement according to Art. 3 and 10 HD is a promising adaptation option; however, it clearly lacks legally binding force (Trouwborst 2011, p. 74; Cliquet et al. 2009, p. 171).

Another typical shortcoming is the lack of an externally binding effect of management planning provisions. Hungary and Romania have made strict rules on this, so that management requirements also directly influence other land use activities, at least within the protected areas. Other countries have to first introduce specific statutory prohibitions to reach the same goal, for example in cases when intensive agriculture must be restricted in order to keep the protected habitats' resilience to climate change impacts at an appropriate level.

Even more problematic are existing, permitted activities outside the protected areas that affect the areas' ecologic quality, like industry emissions, infrastructure construction and traffic, urban planning and building activities, tourism and agriculture. In this respect, apart from the single permission granted according to the legal provisions implementing Art. 6 (3), (4) HD at the time of granting the permission, there is hardly any option that allows the restriction of such activities in reaction to climate change induced developments in order to strengthen resilience and thus maintain the favourable conservation status of habitats and species. Only the deterioration prohibition as implemented according to Art. 6 (2) can, in

principle, be used for this purpose, if the initial impact assessment did not cover future effects, as can be deduced from ECJ rulings in the cases concerning cockle fishery in the Wadden Sea[40] and the Papenburg wharf.[41]

9.5.2.3 Proposed Changes to European and National Nature Protection Law

Legal rules should be introduced that can control land use activities that weaken the ecologic resilience of protected areas to climate change impacts. Laws are needed as citizens' fundamental rights, especially those of property and profession, but also in terms of general freedom of movement and behaviour, are affected by the restrictions necessary to maintain the effectiveness of nature protection activities under future changing climate conditions.

Furthermore, there should be climate change specific surveillance (Art. 11 HD) and comprehensive planning for network coherence improvement, including implementation stricter than required by Art. 3 and 10 HD, and with accompanying guidelines for criteria to help improve connectivity, also with respect to climate change impacts. Especially the aspect of cross-border connectivity requirements should be taken into account on the European and international level.

As a last resort, clear regulations are required about the conditions under which Natura 2000 sites can be cancelled as a whole or their protection goals changed because they have proved impossible to sustain. In the rare cases where no new Natura 2000 protection goal for such an area can be defined, protection can nevertheless be maintained according to national nature protection law.

9.5.3 Water Law

9.5.3.1 Options for Climate Change Adaptation in RBMP

Regarding river basin management planning, it is agreed that the step-wise and cyclical approach of the WFD (regular review and update) makes it well suited to handling climate change (European Commission 2008, p. 4). On the one hand, it is possible to influence the quantity and quality of water that will be available and be used in the future. On the other hand, the adaptation requirements of water-dependent habitats and species can be fulfilled. In addition, the objective of good ecological water status supports the resilience of aquatic ecosystems. The European Commission has published two documents with far-reaching recommendations for

[40] ECJ 7.9.2004, Case C-127/02 "Waddenvereniging and Vogelbeschermingsvereniging", [2004] ECR I-7405, para. 34 et seq.

[41] ECJ 14.1.2010, Case C-226/08 "Stadt Papenburg", [2010] ECR I-131, para. 48 et seq.

climate change adaptation, which are to be implemented by member states: the Policy Paper "Climate Change and Water" (EC 2008) and the Guidance Document No. 24 "River Basin Management in a Changing Climate" (EC 2009). This approach can be qualified as a "soft" steering method that uses recommendations and guidance, specifying the legal provisions of the WFD.

9.5.3.2 Proposed Changes to European and National Water Law

Although river basin management planning under the WFD offers a range of possibilities to consider climate change, the recommended adaptation measures are not legally binding. In particular, there is a lack of requirements to carefully evaluate and consider actual adaptation needs. Especially, constructive rules on how to adapt the objectives are missing, ones that effectively prevent the premature or abusive setting aside of objectives (Reese 2011, p. 61 and 73). Another weakness in the conception of river basin management planning is that a long-term, structural adaptation need is not formally taken into account (Reese 2011, p. 80). Furthermore, quantitative water management goals are not sufficiently integrated (Reese 2011, p. 81 et seq.). To ensure that climate change adaptation measures are definitively implemented by the administrations in the member states, therefore, the respective obligations should be integrated into the legal framework of the WFD.

9.6 Proposed Changes to the Political and Legislative Process of Climate Change Adaptation

The political framework for adapting nature conservation to climate change is rooted in the European legal documents. The review of European legal commitments (Bern Convention and the EU Wild Birds and Habitats Directives) has been undertaken from the perspective of the need to assist nature with adaptation to climate change (Trouwborst 2011). It has illustrated that both the Bern Convention and the EU directives subject countries to legal obligations to take measures to facilitate the adaptation of biodiversity to climate change. These measures encompass a variety of activities such as the restoration and protection of species and habitats and the establishment of ecosystem connectivity to enable climate-induced range shifts (Trouwborst 2011).

Most of the countries concerned are well aware of the necessity of proactively instigating action supporting climate change adaptation of natural and managed ecosystems and integrating climate change adaptation measures with protected area planning, management strategies and the design of protected area systems (Naumann et al. 2011). It can thus be inferred that the political climate now favours the introduction of more demanding actions to adapt measures of ecosystem

management so as to maintain their resilience to extreme climate events and to help mitigation of and adaptation to climate change.

On the level of the legal system, this entails the need to make new rules that plan and prepare future habitat protection requirements using no-regret management and protection measures based on surveillance of climate change impacts and research findings. It will also require the creation of a set of regulations that can be used to react to unforeseen or extreme events in the spirit of "principled flexibility". The climate change specific integration of network coherence of planning provisions on the regional, national, European and international levels as well as throughout the relevant sectors of public and private land use is the corresponding superordinate field of action that provides possibilities to control conflicting land use activities for resilience improvement.[42] In the case of water law, climate change impact-oriented regulations about adapting the objectives and undertaking long-term structural adaptation of river basin management planning should explicitly be taken into account within the legal framework.[43]

However, making nature protection and water law more resilient to climate change is politically challenging. A stricter protection regime will inevitably cause conflicts with established economic and infrastructural land uses that may themselves need to be reshaped and adapted to climate change. For example, increased efforts to mitigate greenhouse gas emissions can conflict with the interests of climate change adapted nature protection. Developments in the energy sector involve more and more power lines, wind turbines, biomass farming and water power use leading to increases in the amount and intensity of land use and thus affecting natural resources, habitats and species. To achieve the challenging and interrelated objectives discussed here, it could be beneficial to consolidate all required new regulations about climate change-specific surveillance, coordinated planning processes, the implementation of no-regret measures for resilience improvement and instruments for controlling land and water use activities. This consolidation should be flexible and guided by adaptation principles, and could take the form of a single, climate change adaptation-oriented regulation that encompasses European environmental law generally, rather than involving the successive and individual amendment of the respective legal acts. The political decision that needs to be taken either way concerns the status of biodiversity protection when conflicting legal rights and interests are weighed against each other – not neglecting the fact that biodiversity, too, is of economic significance, but even more importantly, has a great ethical value of its own and is the foundation of our life on earth.

[42] See above, 4 (b) (cc).

[43] See above, 4 (c) (bb).

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